

Claims

[c1] What is claimed is:

1. A photoresist coating system comprising:

a chemical tank for positioning at least one photoresist bottle, the photoresist bottle being used for storing photoresist solution supplied to the photoresist coating system;

a cooling system for chilling the photoresist solution in the photoresist bottle;

a heating system for heating the photoresist solution; and

an automatic photoresist feed system for draining and delivering the photoresist solution.

[c2] 2. The photoresist coating system of claim 1 further comprising at least one sensor for detecting an amount of the photoresist solution in the photoresist bottle.

[c3] 3. The photoresist coating system of claim 1 further comprising at least one temperature sensor for detecting a temperature of the photoresist solution in the photoresist bottle, and a control circuit electrically connected to the temperature sensor, the cooling system, and the heating system for temperature controlling.

- [c4] 4. The photoresist coating system of claim 1 wherein a temperature of the cooling system is between -5°C and -20°C .
- [c5] 5. The photoresist coating system of claim 1 wherein a temperature of the heating system is between 20°C and 25°C .
- [c6] 6. The photoresist coating system of claim 1 wherein the cooling system comprises a coolant, a water jacket, a water pump, a water tank, or a thermostat.
- [c7] 7. The photoresist coating system of claim 1 wherein the heating system comprises at least one heat exchanger.
- [c8] 8. The photoresist coating system of claim 1 wherein the automatic photoresist feed system comprises a draining and pushing device for draining the photoresist solution in the photoresist bottle and pushing the photoresist solution to a surface of a substrate through a nozzle by utilizing the principle of draining and pushing.
- [c9] 9. The photoresist coating system of claim 1 further comprising a bubble trap tank for collecting bubbles in the photoresist solution.
- [c10] 10. The photoresist coating system of claim 1 further comprising a waste collecting system for reclaiming the

photoresist solution sprayed during spinning coating.

[c11] 11. A method for performing a photolithography process by a photoresist coating system comprising the following steps:

providing a plurality of photoresist solutions, each of the photoresist solutions being stored in a photoresist bottle;

chilling the photoresist solutions to a first temperature by a cooling system in the photoresist coating system;

selecting a first photoresist solution among the plurality of photoresist solutions;

heating portions of the first photoresist solution to a second temperature by a heating system in the photoresist coating system; and

delivering the heated first photoresist solution by an automatic photoresist feed system.

[c12] 12. The method of claim 11 wherein the step of delivering the heated first photoresist solution by an automatic photoresist feed system further comprises the following steps:

utilizing a draining and pushing device to filter the heated first photoresist solution through a photoresist filter; and

dropping the heated first photoresist solution to a surface of a substrate through a nozzle.

- [c13] 13. The method of claim 12 wherein the photoresist bottles for storing the plurality of photoresist bottles are positioned in a chemical tank.
- [c14] 14. The method of claim 13 further comprising a step of pumping nitrogen to the inside of the chemical tank.
- [c15] 15. The method of claim 11 wherein the first temperature is between -5°C and -20°C .
- [c16] 16. The method of claim 11 further comprising the following steps before selecting the first photoresist solution among the plurality of photoresist solutions:
sensing air drained from the photoresist bottle for storing the first photoresist solution and transferring a disable signal to the photoresist coating system;
releasing the air drained from the photoresist bottle for storing the first photoresist solution; and
draining the first photoresist solution to the heating system.
- [c17] 17. The method of claim 16 wherein the photoresist bottle for storing the first photoresist solution is replaced before releasing the air drained from the photoresist bottle for storing the first photoresist solution.
- [c18] 18. The method of claim 16 wherein at least one sensor

is utilized to sense the air drained from the photoresist bottle for storing the first photoresist solution, and a bubble trap tank having an exhaust taken charge by a valve is utilized to release the air.

[c19] 19 . The method of claim 16 wherein the photoresist bottle for storing the first photoresist solution is replaced before draining the first photoresist solution to the heating system.

[c20] 20. The method of claim 11 wherein the second temperature is between 20°C and 25°C.